ON THE

TEACHING OF MEDICINE

IN

EDINBURGH UNIVERSITY:

A LECTURE INTRODUCTORY TO THE COURSE OF

PRACTICE OF PHYSIC,

SESSION 1879-80.

BY

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Reprinted from "The Lancet."

EDINBURGH:
BELL & BRADFUTE, 12 BANK STREET.

1879.

EDINBURGH:
PRINTED BY LORIMER AND GILLIES,
31 ST. ANDREW SQUARE.

THE TEACHING OF MEDICINE IN EDINBURGH.

GENTLEMEN,—I do not generally commence my course by the delivery of a formal introductory lecture, but prefer to devote the first day of the session to a plain statement of the objects of the course, and the methods to be pursued; but occasionally special circumstances arise which seem to demand a lecture of a somewhat different kind. And such circumstances have arisen to-day. For we look forward to witnessing to-morrow what we may justly regard as a national event, but more especially a great event in connection with the teaching of our art in Edinburgh,—the opening of the new Royal Infirmary. Such an event as this seems to make it desirable to devote this lecture to a consideration of the past, the present, and the future of the teaching of medicine in this University.

Two hundred years ago the University was already a century old. It was doing excellent work in its Faculties of Arts and Divinity, but afforded no opportunity of obtaining instruction to those who selected the profession of medicine. Scattered throughout the literature of the country we find incidental references to the existence of medical men in Scotland, and evidence that their knowledge was held in high esteem. In an oft-quoted passage Lindsay of Pitscottie tells us that "King James the Feird was learned in the airt of medicine, and ane singular gude chirurgiane, and there was none of that profession, if they had any dangerous cure on hand, bot would have craved his adwyse."* And Sir James Simpson has collected from some of the old statements of expenditure still preserved in the Register Office, some curious evidences of gratuities awarded by the monarch to people who submitted themselves to his treatment. In 1491, "Item to Domenico to gif the King leve to lat him blud, xviii shillings;" and again, "Item to ane fallow, because the

* "Chronicles of Scotland," vol. i., p. 249.

King pullit furtht his twtht, xviii shillings." Again, "Item to Kynnard ye barbour, for twa teith drawin furtht of his hed be the King, xviii shillings." And lastly, "Item to ye blind wif yat hed her eyne schorne, xiii shillings."* These facts may recall to some of you the circumstance, that historians enumerate among the high qualities of Henry VIII. his being an excellent physician, so that medicine must have been a favourite study of royalty in those days.† That there were practitioners about the Court of James the Fourth who had medical degrees is shown by a curious passage in a poem addressed to the King by Dunbar:—

> "Sir, ye have mony servitours,
> And officers of divers cures,
> Kirkmen, Courtmen, Craftsmen fine,
> Doctors in jure and medicine."

From the Records of the Burgh of Edinburgh I find that, on the 9th of February, 1557, the Council ordained James Adamsoun "to pay to John Wauchlott, officer and chirurgeane, the sowme of thre pundis for curing and mending of James Hendersonis leg in the townys service, at the taiking of Ramsay, ane thief, quha we slane in the taiking."‡

From the Report on Historical Manuscripts I find that, in various parts of Scotland, the office of coroner existed in the fifteenth and sixteenth centuries. In Argyllshire, for example, various charters refer to the office. But one of the most curious facts, in a medical point of view, laid before this Commission by Mr. Fraser in his Report on the Argyll Papers, is, that an office existed, appointed by royalty, entitled that of the principal physician within the isles of Scotland. From a charter, dated 10th July, 1609, granted by King James the VI. in favour of Fergus M'Beath, in Ila, it is seen that this gentleman received that appointment, "with all the profits and casualties belonging thereto," along with certain lands, which were thereby feudally vested in him, and to be transmitted to his family. Such incidental references are to be met with here and there, and it is, of course, well known that, so early as 1505, the surgeons of Edinburgh were formed into a corporation, and, as Maitland says in his History of Edinburgh, "Accord-

* "Archæological Essays," vol. ii., p. 309.

† "Froude's History of England," vol. i., p. 175.

‡ "Extracts from the Records of the Burgh of Edinburgh," p. 16.

ing to the custom of other European nations, were incorporated with the barbers;" but before this official incorporation it is clear that they possessed some sort of corporate existence, for certain officials called "the kirkmaister and brether of the surgeanias and barbouris" appeared before the Council to support their petition. In 1681, the physicians of Edinburgh, who had long been aiming at incorporation, received from Charles the Second a charter constituting them the Royal College.

We know, unfortunately, very little as to how the practitioners of these early days received their education. The surgeons learned their work by the system of apprenticeship. Those who wished to join the craft being apprenticed to a member of the guild, whose practice he watched, and with whom, like other apprentices, he lived in family. But their class education must have been very deficient. Although the teaching of anatomy was contemplated from the time of the incorporation of the surgeons, it must have been very inadequately performed, for, in the year 1671, a skeleton of a Frenchman brought from Paris was regarded here as a very great curiosity. It is described in a catalogue of rare and valuable articles belonging to the University as being "neatly and cleanly done, and covered with a white sheet, and wants three teeth above and four below, and the forefinger or joint of the right hand is dropt off. He hangs in a very convenient oblong box of timber, which, opening with three doors, exposes all parts of him to view." * Thus, more than a century and a-half after the charter was granted to the surgeons, there can have been scarcely any opportunity for the real study of anatomy. Home-bred physicians must have derived much of their knowledge from seeing the practice and receiving the oral instructions of their seniors, though perhaps they, like other physicians of their time, thought more of mastering the dicta of Hippocrates and Galen than of observing disease for themselves.

The fact that wealthy Scots sought to secure the services of foreign physicians, that sometimes they went abroad in order to consult individual practitioners, and that in one instance a rich Archbishop of St. Andrews called, for consultation, a physician from beyond the Alps, shows that the repute of

* "Lonsdale's Life of Knox" p. 51.

native doctors was not then very high. Doubtless a consciousness of the defects of home training stimulated candidates for medical honours to visit foreign seats of learning, and led not a few Scotchmen, towards the end of the sixteenth and throughout the seventeenth centuries, to Leyden, and Paris, and Rheims, and Padua, and Wittemberg.

Sir Robert Sibbald, who had been one of the principal agents in getting the charter for the Royal College of Physicians, was, in 1685, appointed by the Town Council the first Professor of Medicine in the University. Later in the same year Dr. James Halkett and Dr. Archibald Pitcairn were appointed professors, that they might unite their efforts with those of Sir Robert in teaching the science of medicine. Apparently they did not accomplish much as teachers, for the only token of Sir Robert's activity which Bower, the historian of the University, was able to find, consisted in an advertisement in the *Edinburgh Courant* of 14th February, 1706, in which it was stated when the course was to commence, that it was to be delivered in Latin, and that none would be admitted but such as understood Latin and Greek. From the wording of the advertisement it appears that he did not teach in the College, but in his own house, which was situated in Carrubber's Close, High Street. Probably he perceived clearly enough the advantages that would follow the establishment of a medical school in Edinburgh University, but he could not, even with the assistance he had secured, succeed in establishing it. There is no evidence that Dr. Porterfield, who was elected Professor of the Theory and Practice of Physic in 1724, ever delivered lectures; and it was not till four young physicians, who had been educated abroad, made a fresh start in the teaching of medicine, that anything was accomplished.

In 1720, these four young men—Dr. Andrew Sinclair, a graduate of Angers; Dr. John Rutherford, a graduate of Rheims; Dr. Andrew Plummer, a graduate of Leyden; and Dr. John Innes, a graduate of Padua, began, with the approval of the Town Council, to teach the theory and practice of medicine and chemistry in rooms connected with the old hall of the College of Surgeons, where the first Monro had taught anatomy before he was transferred to the University. After a few years' work outside, the four teachers, upon their petition, supported by

the Royal College of Physicians, were admitted within the University as professors. It is recorded in the Council minutes that on the 9th of February, 1726, "the Council being fully convinced that nothing can contribute more to the flourishing of this, or of any other college, than that all the parts of academical learning be professed and taught in them by able professors, they were of opinion that it would be of great advantage to the college, city, and country that medicine in all its branches be taught and professed here by such a number of professors of that science as may by themselves promote students to their degrees with as great solemnity as is done by any other college or university at home or abroad," and they accordingly appoint the four gentlemen I have named, and thus the Medical Faculty of the University became fairly constituted.*

In 1728 the first steps were taken for the establishment of the Infirmary. A house was rented, and six beds for the sick poor were established in it. An arrangement was made whereby the apprentices of the surgeons and the students of physic should have the opportunity of observing the practice at the bedside; and when the Infirmary to which we are now bidding farewell was opened, careful arrangements were made to regulate the clinical work. The earliest developments of clinical study must certainly be regarded as very crude. A clerk received a salary for copying into a ledger records of the cases treated in the wards, and he was further entrusted with the duty of reading aloud in the hearing of the students the records that he had made. From this reading your predecessors made their clinical notes. No doubt they also saw much at the bedside; and there is evidence that the readings of the clerk were felt to be of use to the students, for his times of reading were extended; but in the year 1748 a better plan was introduced. Dr. John Rutherford, who was then Professor of Practice of Physic, proposed to establish clinical lectures. His plan of lecturing seems to have been very much like that which is still followed, and its value was instantaneously felt, for the students seem to have perceived that they thus derived a far better conception of the cases under treatment than they did from their own

* Much information connected with the early history of the Medical School may be found in lectures by the late Dr. John Gairdner, and Professor Struthers, of Aberdeen.

unaided observation, or from the reading of the clerk; the Professor, probably, discovered that his teaching was correspondingly improved, for practical interest in cases always greatly facilitates the acquisition of theoretical knowledge; while the Managers of the Infirmary found their Institution made more popular and their pecuniary resources augmented, by the increased number of students which the lectures attracted.

The Professor of Practice of Physic was not long left to conduct the clinical course alone. Soon a number of his colleagues in the University were associated with him in the arduous work, for I find that in the year 1756 three other Professors co-operated with him in the course of the five months' session, each taking duty for five weeks. During the first part of the session there was the Professor of Anatomy, Dr. Alexander Monro; the second, the Professor of the Institutes of Medicine, Dr. Whytt; the third, the Professor of Practice of Physic, Dr. Rutherford; and the fourth, the celebrated Dr. Cullen, who afterwards adorned the Chair of Physic. It was an immense advantage, and one which, I hope, may always be retained in Edinburgh, that the students thus obtained the opportunity of seeing the practice, not of one professor, but of three or four.

But ideas as to clinical teaching gradually advanced. Mere *ex cathedra* statements by professors, however experienced, no longer sufficed; and the system which had been considered so nearly perfect in the middle of the last century was rather lightly esteemed in the beginning of this. In this we have an instance of a great rule which one may constantly observe in operation in different spheres of life—that the great step in advance of to-day becomes a matter of course to-morrow, and at last is displaced by some new suggestion. Dr. Graves, of Dublin, complained that, when he studied here in 1819, the clinical teaching was most defective, and he says that he feared that many were annually dubbed doctors at Edinburgh who had scarcely ever been called upon to write a prescription. But such an assertion could not have been justly made thirty years later, when, under the leading of Professor Hughes Bennett and others, the present practical system had been developed.

At the present time, medicine is taught in the University by means of systematic and clinical courses. Let me explain to you

the objects and methods of each. The aim of the course of systematic lectures is to give in bold outline a description of the features of the various types of morbid action, and of these types as they manifest themselves in the different parts and organs of the body, also to describe the treatment which each condition demands. To any one acquainted with the subject, it must be apparent that it is impossible to do this work adequately within the limits of a single winter session; but as the present regulations for graduation require attendance during only one session, and as many students, however anxious they may be for a more extended course, are prevented by pressure of other work from attending more than once, an effort is made to render the course in each session as complete as possible. In different years, however, more time is devoted to one group of diseases and less to another; thus, for example, last session much attention was given to diseases of the alimentary and nervous systems; this year these will be described with much less minuteness, but the account of constitutional maladies and fevers which it was necessary to shorten, and in part omit last year, will take a leading place. It would be impossible to overtake so much even as we do, if we had not recourse to the printed slips which I adopted when first beginning to teach Practice of Physic. Every day, as you enter the class-room, each of you will receive one or more printed slips, constituting a syllabus of the lecture of the day. All the slips are arranged on a uniform plan, and each in a methodical way indicates the salient features of the disease to which it refers. The lecture generally closely follows the arrangement of the slips, so that if you gum them into your note-books, at the head of each section of your notes, you will find that they aid you materially in forming a clear and definite conception of the malady. Your predecessors have assured me that they have found the slips as helpful in study as I find them in teaching.

The systematic course is of use as guiding you to a correct and appreciative observation of the phenomena of disease, and it should impress upon you a first broad outline of the territory with which you are afterwards to become familiar from the detailed descriptions of others, and by your own observations. You will find the study somewhat arduous on account of the large number of facts which must be detailed, on account of the extreme

condensation which is necessary, and very specially because of the difficulty at the present time of laying down principles capable of wide application. But if you compare the descriptions given in the class-room with the cases you observe in the wards, noting their points of correspondence and of difference, you will find that with wonderfully little effort your knowledge grows up towards completeness.

The course of clinical medicine consists of (*a*) lectures on cases under treatment, and (*b*) studies at the bedside. I have shown you how these clinical lectures took origin more than 130 years ago, and have told you of the favourable impression which they at first produced. Nowadays it is necessary rather to vindicate the usefulness of the clinical lectures, because the other method of teaching—the bedside instruction—is (and I think justly) more highly appreciated. Consider their advantages. Not unfrequently it is possible for us to bring patients into the lecture-room, and there demonstrate the features of their maladies, and even when this cannot be done, I know of no method more profitable than clinical lecturing, for the comparison of an individual case with the type, or of a group of cases with the type and with one another. The clinical lecture also affords opportunity which cannot be obtained in the systematic course, or in any other way, for a detailed exposition of some special and remarkable feature of disease, a discussion of an important symptom, as it has shown itself in different cases, or of the uses of and modes of using a particular remedy. But I could not speak so favourably of the clinical lectures if they were mere systematic disquisitions tacked on to a brief description of a case. An old friend once told me that he met a hospital physician who had been working hard in town all autumn, and who, in answer to an inquiry what the work had been, innocently replied that he had been writing his clinical lectures for next winter. I do not know whether the clinical lectures proved useful or not, but I believe that the Edinburgh students of the present day would not relish such productions. Good clinical lectures must be the fruits of accurate and thoughtful study of the individual cases to which they relate.

The clinical lectures are delivered by the four ordinary Clinical Professors in rotation, and the Professor of Obstetrics

gives once in three weeks a gynæcological lecture. The class will meet in the theatre provided for its use in the University department of the new Royal Infirmary. Those of you who have experienced the discomforts of the old pathological theatre will rejoice in this change, although the old lecture-room had been consecrated by the labours of many masters in the art.

Bedside teaching is, as I have said, by far the most important part of the clinical course. When the medical school of the University was smaller, it suited quite well to have one Professor or two on duty at a time, but now with a clinical class approaching 200, it is necessary that the whole clinical staff should simultaneously engage in teaching. By this means, the class is distributed throughout the University wards, so that each student has the opportunity of really coming into contact with the patients. Four of the Professors even teach clinical medicine generally, while the fifth, the Professor of Obstetrics, devotes himself to the diseases of women. Every effort is made to enable you to perceive the facts involved in the cases, to teach you to discriminate between different conditions under observation, to reason soundly upon the facts observed, to determine the line of treatment, and to watch its result.

But this year our bedside teaching is, in consequence of the opening of the new Royal Infirmary, to be conducted under conditions vastly superior to those which have hitherto existed. The noble architectural features of the new Infirmary Buildings, the very remarkable position which they occupy, within easy reach of the poorest parts of the city, close to the University, and yet occupying an elevated and open situation, with views of hills and of trees, and abutting on one of the finest public parks of the city, constitute advantages which no one could overlook. But its internal arrangements have been determined after the most thoughtful consideration, and careful and extended inquiries on the part of the Architect, the Superintendent, and the Managers, and I am anxious that you should appreciate them. The first essential in hospital construction is abundance of air and light. The evils of overcrowded wards are well recognised in surgical practice, but although less obvious in medical cases, they are not less real. And this is

true, not only of fever wards, but of general medical wards; overcrowding, or the presence of some peculiarly unhealthy case, lowering the vitality, and otherwise exerting an injurious influence upon the patients. In our new wards, air and light are abundant. The hospital being built on the pavilion plan, there are windows on each side of the ward, and at one of the ends. The wards are 112 feet long, 28 feet broad, and 15 high, and are arranged to accommodate 21 patients. The beds are separated from one another by a distance of at least 6 feet, and thus the evils and discomforts of close approximation are avoided. The cubic space allowed is 2350 feet for each bed. The Architect, Mr. Bryce, tells me that the space is larger than that allowed in the Herbert Hospital and in the new St. Thomas' Hospital in London, two of the best of the recently constructed hospitals of this country, for they have 1200 and 1800 cubic feet per patient respectively. But no available cubic space would suffice if there were not arrangements for the removal of the impure and the supply of pure air. In our wards the ventilation outwards is by extraction, a central heated chamber being in connection with the ventilating structure in the different wards. At each corner of the wards there are shafts with two openings, one low down, the other high up; and beneath each bed there is an opening leading to the extracting apparatus. By these means all noxious vapours will be readily removed. But a further aid has been arranged in connection with the gas brackets, for over each of them is a receiving tube, which will carry off other waste products besides those of the gas. The open fire-places are also valuable ventilators. For the supply of fresh air we are to depend to a large extent upon the windows, all of which are made to open at three places. At the top, fourteen feet from the ground, there is an arrangement for swing opening, which may be kept closed or opened to a very small extent, or to several feet. From the swing arrangement it is anticipated that both an outward and an inward current may be secured at the tops of the windows. The sashes are also movable, and by them fresh air may be admitted at the level of the sill or at the top of the window. But as in our climate direct opening of windows is often unsuitable, each ward has also been provided with three Galton grates. These grates

are so arranged that a current of fresh air is admitted to a chamber situated behind the back plate of the grate. In this chamber the air becomes heated, and from it, is passed on into the ward by an opening above the chimney-piece. Each grate is calculated to yield per hour 100,000 feet of fresh air warmed up to a temperature of 60° Fahr. In such spacious rooms, the heat derived from the grates alone would, of course, be insufficient to keep up a satisfactory temperature. Therefore advantage is taken of a complete system of steam-pipes, which are distributed throughout the house, and by means of which it is expected the air of the wards will be maintained at a comfortable heat.

The next essential is an efficient system for the removal of excreta; and in connection with every ward there are very complete arrangements. The demands made by an infirmary upon the public drainage system, although formidable enough, are not so great as those of an ordinary town district of similar extent, for the population inhabiting the eleven acres of infirmary ground will be much less than that of adjoining spaces occupied by dwelling-houses. But the liability to infectious excreta makes the hospital drainage of special importance, even in an infirmary like ours, where infectious cases are not received. All the drains proper to the house are therefore carefully ventilated by means of pipes, which pass away above the ridge of the roof, far from any windows. The drains and pipes have further arrangements of double traps, so as to make them as secure as possible. The water supply for drinking purposes is quite distinct from that for the water-closets and baths. Baths and lavatories of the most approved kinds are attached to each ward. When you visit the wards you will see the arrangements that have been made for supplying the food to the wards in good season, the ward kitchens, the recreation rooms, doctor's rooms, and other conveniences connected with them.

Gentlemen, when I think of the discomforts of the old Infirmary, of its cubic space of something like 1000 feet for each patient, of its deficient ventilation and superabundant draughts, of its inconvenient water-closet and lavatory arrangements, and its scarcely accessible baths, I feel that we cannot be too grateful for the generous efforts which have been made,

without any kind of Government aid, to provide in the capital of Scotland a noble institution, open to every comer if only he be sick and poor, and for the great medical school of Edinburgh, a hospital which can hold its own with any in the world.

But I would not have you for a moment suppose that I forget the merits of the old Infirmary and its benevolent founders. It, too, was, for its time, a noble edifice, and in it work has been done, both in the way of observation and teaching, which it will be difficult for us and our successors to surpass. The words which you must often have noticed on the front wall near the doorway—"I was sick, and ye visited me." "I was naked, and ye clothed me"—indicate the motive which led to its erection and support; and looking back upon its history, we cannot but feel how amply and how well this aspiration has been realised.

Besides the regular clinical teaching in the wards, there has been introduced of late years another course of instruction—the clinical tutorial class. This class is intended to initiate the student into the methods of examination of patients, and, in particular, the physical examination of the heart and lungs. It is manifest that such training cannot be given by the Clinical Professors, and the tutor is entrusted, under their superintendence, with the work of training and drilling in those respects. This kind of instruction constitutes an essential link between the systematic and the clinical courses. The opportunities afforded by this class have been largely taken advantage of by the students, and I consider that any one who fails to avail himself of it, is neglecting an important means of self-improvement.

Gentlemen, in regard to your own clinical studies, there are four particulars which I would advise each of you to keep steadfastly in view. First, that throughout the whole period of your attendance you should watch the individual cases which come under your notice; see that you understand what is being done for them; compare their features with the general description given in the systematic course; and keep brief notes of the leading points. Second, that at the commencement each of you should attend the tutorial class, and take great pains to educate yourselves in physical diagnosis. Third, that each should aim at obtaining a clinical clerkship, so

as to be entrusted with the duty of keeping the official records of cases. But this should not, as a rule, be attempted before you have had some experience at the bedside, some tutorial instruction, and, if possible, a course of systematic lectures. Fourth, that you should prepare, during the time that you are clerks, or, at all events, during the later period of your ward attendance, what we call "Studies of Cases." These studies consist, in a narrative, with comments suggested by your own observation or your reading. I have for many years sought to stimulate the production of such studies, and the University authorities have lately, on two occasions, given them their *imprimatur*. The Wightman Prize in clinical medicine is awarded annually to the student "who shall write the best dissertation on any subject presented by the Medical Faculty, or who shall make the best report and commentary on cases which have, during the previous winter and summer sessions, been treated in the University clinical wards of the Royal Infirmary." And the same idea has been kept in view in arranging for the new Leckie-Mactier Fellowship, which consists of the free annual proceeds of £2000, is tenable for three years, and is open to bachelors of medicine of not more than three years' standing. The award will be, to a large extent, determined according to the value of written reports and commentaries on medical, surgical, and gynæcological cases. The sanction thus given to this kind of study, and the advantages which will flow to you from its successful cultivation, should lead you all to pay special attention to it; and I may suggest that such essays would prove alike interesting and useful if read as communications at your Royal Medical Society.

As to the future of the teaching of medicine, I shall throw out only a few suggestions. We look forward with much pleasure to the transference of the whole Medical Faculty to the new University buildings which are in course of erection, and in which we shall find abundance of space, and every other facility for teaching and for research. As to the systematic lectures, I hope that ere long attendance during two sessions will be made compulsory, and the occupant of the chair be thereby enabled to do more justice to the many important subjects included in the department of practice of physic.

As to the clinical course, I hope to see each of the Clinical

Professors supplied with an ample number of beds, and with a full staff of assistants. It is, I have no doubt, much regretted by the Managers of the Infirmary that they have been compelled to refuse to open one male ward more, so that each Professor should at once have a sufficiency of beds for clinical instruction. We hope that the generosity of the public will soon enable the Managers to comply with this reasonable request of the University authorities. I am sure that its opening will not be long delayed if once it is understood that not only is teaching hampered, but that many an urgent case must be refused admittance, although spacious wards are standing empty, merely because of the poverty of the Institution.

Longer attendance in the wards is also desirable, and if the number of students goes on increasing, a further development of the tutorial system may be required. After a time the tutorial class may have to be conducted, not by one tutor, but by a group of tutors, each training and drilling a small party of students with individual attention, one or more taking up the subject of the physical examination by means of percussion and auscultation; one training in the examination of urine and other secretions; and one in the use of the laryngoscope; one in the use of the ophthalmoscope in relation to medical diagnosis; one in the applications of electricity to diagnosis and treatment; and one, perhaps, in the special details of bedside management, of which the young practitioner is so often ignorant.

From what I have said it will be apparent that, in my opinion, the time has now come when the period of study for the degree of Bachelor of Medicine should be extended to five years. The amount of information presented to the student during the curriculum is so great that, were it not for the improved modern methods of teaching, it would not be possible for him to acquire an adequate knowledge of it. And even with the advantage of these methods, to the average student the work is very severe. But if more time could be allowed, so that, at the end of the third year, he could have finished with the purely scientific departments, and upon the grand foundation of knowledge and capability which our University training affords, he could proceed during the remaining two years to the study of the practical subjects, his work throughout would be less arduous, and the education more complete.